

REMARKS / DISCUSSION OF ISSUES

Claims 1-15 are pending in the application. No amendments are made to the claims. Claims 1, 9 and 13 are the independent claims.

Allowed and Allowable Subject Matter

Applicants gratefully acknowledge the indication of allowance of the subject matter of claims 9-15; and the indication of allowability of the subject matter of claims 2-4, 7 and 8, which depend directly or indirectly from independent claim 1.

Rejections under 35 U.S.C. § 103

Claims 1, 5 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kalkhoran, et al.* (US Patent 5,691,914) and *Simpson, et al.* (U.S. Patent 5,965,873). For at least the reasons set forth herein, Applicants respectfully submit that this rejection is improper and should be withdrawn.

As stated in MPEP § 2143, in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Moreover, under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. While the sequence of these questions might be reordered in any particular case, the factors continue to define the inquiry that controls. If a court, or

patent examiner, conducts this analysis and concludes the claimed subject matter was obvious, the claim is invalid or unpatentable under § 103. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727; 82 U.S.P.Q.2D 1385 (2007), citing, in part *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

However, the Court in *KSR* continued: "A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *Graham*, 383 U.S., at 36, 86 S. Ct. 684, 15 L. Ed. 2d 545 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "guard against slipping into the use of hindsight" (quoting *Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co.*, 332 F.2d 406, 412 (CA6 1964)))." Moreover, if there is no suggestion to combine the teachings of the applied art, other than the use of Applicants' invention as a template for its own reconstruction, a rejection for obviousness is improper. *Ex parte Crawford, et al.* Appeal 20062429, May 30, 2007.

i. The applied art fails to disclose at least one feature of claims 1

While Applicants in no way concede that the applied art is properly combined, because the applied art as relied upon fails to disclose at least one feature of each of claim 1, a *prima facie* case of obviousness has not been established.

a. Claim 1

Claim 1 is drawn to a method for forming a silicon-on-insulator (SOI) photodiode optical monitoring system. The method features:

"providing a plurality of SOI photodiodes (10; 30),...

determining a proportion of incident light passing through each SOI photodiode (10; 30) to the silicon substrate (12; 32) with respect to wavelength and the thickness of the silicon layer (16; 36); and

calculating color component intensities of the incident light based on the

determined proportions.”

In addressing the featured calculation of claim 1, the Office Action directs Applicants to the photodiodes 196-204 and the processor 254 disclosed in *Kalkhoran, et al.* A review of the description of the processor 254 of *Kalkhoran, et al.* does not reveal its alleged capability to determine a proportion of incident light passing through each SOI photodiode. Moreover, there is no disclosure or suggestion that the signal strength is measured, let alone that the processor 254 must provide an output that is based on signal strength at a certain wavelength as the Office Action asserts. Rather, in describing the function of the processor 254, *Kalkhoran, et al.* discloses only its use in effecting an alarm upon the detection by the detector 252 of electromagnetic radiation by wavelength. Notably, the description of the function of the processor 254 in the applied reference relates to its function in an alarm/safety system 250 based on wavelength-based signals received at the detector 252. In particular:

FIG. 13 is a general block diagram of an electronic alarm/safety system 250 utilizing a wavelength selective detector 252 according to the present invention. The system 250 includes the wavelength selective detector 252, a processor or logic circuitry 254, and some form of alarm 256. Optionally, the system 250 can also include a safety cutoff 258, a radio transmitter 260 and/or a remote alarm 262. The system 250 can be employed, for example, as a hydrogen flame detector, a hydrocarbon (gas, oil or coal) flame detector, a flame detector in a flammable gas storage facility, a flame-out monitor for aircraft engines, an ignition detection system for rockets.

One application as a hydrocarbon-fuel flame detector involves home heating systems. Home heating furnaces produce a flame which flickers in the visible spectrum, but is constant in the UV. The detector 252 can monitor UV to ensure the flame is always lit. If it detects that the flame has been extinguished, it can signal processor 254, which in turn detects an alarm condition and operates safety cutoff 258 to shut down the flow of fuel to the furnace, thus preventing fuel build up and explosions. Optionally, the processor can also trigger a hard wired alarm 256 or a remote alarm 262 by way of radio transmitter 260. Because of its wavelength sensitivity, detector 252 remains unaffected by the visible part of the flame, room light and sunlight.

In applications such as hydrogen flame detectors and/or safety monitors in a gas storage facilities, the system 250 operates much in the same way as it does in the home heating monitor. The detector 252 detects a flame and signals the processor 254. The processor operates alarms 256 and/or 262 and signals safety cutoff 258. In the case of a hydrogen

flame detector, the safety cutoff shuts down the hydrogen source. In the case of a gas storage facility, the safety cutoff can be designed to isolate particular gas storage tanks to minimize the chance of explosion.

The military applications for the system 250 are significant. By way of example, when placed on satellites, the detector 252 can detect the UV signal from a ballistic missile, regardless of the interference from visible and IR background. The processor 245 can then signal the radio transmitter 260 to operate a ground based-alarm 262. Alternatively, if mounted on a jet aircraft or a rocket, the detector 252 can be used as a safety device for ignition or flame-out verification. For example, consider the following situation: When an aircraft releases a missile, the missile must accelerate away from the aircraft immediately and not fall behind it. If ignition is delayed, and the aircraft pulls ahead of the missile, the missile could inadvertently lock on to the aircraft. The detector 252 can detect such delayed ignition, and in response, the processor 254 can signal radio transmitter 260 to operate a remote alarm 262 located in the aircraft. In this way, the pilot of the aircraft is rapidly warned in the case of a delayed ignition.

Respectfully, nowhere in the above-captioned portion of *Kalkhoran, et al.* is there even a mention of the detection/determination of signal strength or processing based upon signal strength. Rather, the alarm systems described are based only on the detection of a wavelength of electromagnetic radiation, and not the measure of its intensity or strength. Thus, Applicants respectfully submit that contrary to the assertions of the Examiner, the processor 254 does not necessarily determine signal strength and thus does not necessarily determine the portion of incident light passing in a certain wavelength. Therefore, Applicants respectfully submit that the applied art fails to disclose at least one feature of claim 1. As such, because the applied art fails to disclose at least one feature of claim 1, a *prima facie* case of obviousness has not been made. Moreover, claims 5 and 6, which depend from claim 1 are patentable as a matter of law.

a. Inherency

In multiple instances in the Office Action, the Examiner alleges that certain components of the applied art necessarily must effect a certain result. For example, in the portions of the Office Action reproduced above, the Examiner states that the processor must necessarily determine the portion of incident light passing through a certain wavelength by determining a proportion of incident light passing through each SOI photodiode; and that the processor can perform this function because the strength of the signal depends on that proportion of incident light. As noted previously, there is no

mention of this function, and the described function is based solely on wavelength detection.

This notwithstanding, it appears that in this noted instance and other instances in the Office Action, the Examiner is implying that certain functions are inherent to a particular disclosed element of the applied art. Applicants respectfully submit that inherency has not been established as to the alleged function of the processor 254. To this end, Applicants direct attention to M.P.E.P. § 2112 IV, which provides:

*EXAMINER MUST PROVIDE RATIONALE OR EVIDENCE TENDING
TO SHOW INHERENCY*

*The fact that a certain result or characteristic **may** occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); In re Oelrich, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). “**To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference,** and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’ ” In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (emphasis added).*

Furthermore, a claim rejection must be based on objective evidence of record, and cannot be supported merely on subjective belief and unknown authority. (See, e.g., M.P.E.P. § 2144.03.)

No concrete evidence has been provided by the Examiner here, and the Examiner did not submit an affidavit as required by 37 C.F.R. § 1.104(d) (2) if this proposed motive were based on facts within his personal knowledge (see M.P.E.P. § 2144.03). Applicants respectfully request that such an affidavit be provided if a rejection continues to be made without a citation of any objective evidence.

Applicants submit that at least because the rejection of claims 1, 5 and 6 relies improperly on inherency, a proper rejection has not been established. Therefore, claims 1, 5 and 6 are patentable over the applied art for at least this reason.

Conclusion

In view the foregoing, applicant(s) respectfully request(s) that the Examiner withdraw the objection(s) and/or rejection(s) of record, allow all the pending claims, and find the application in condition for allowance.

If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted

/Larry Liberchuk/

Reg. No. 40,352 for

William S. Francos (Reg. No. 38,456)

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